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AUTHOR	Hammerness, Karen; Darling-Hammond, Linda; Shulman, Lee
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ABSTRACT

This paper explores what, and how, student teachers may learn about theory and practice from writing cases, examining some of the features of the pedagogy that may contribute to these results. The paper draws upon data collected from a quarter-long teacher education course, "Principles of Learning for Teaching," that is offered in the Stanford Teacher Education Program. In this course, writing a case is designed to promote the application of learning theory to practical experiences in the classroom and serves as the central, culminating product of the class. The first section of the paper describes the design of the course, focusing upon how designers wove key concepts of the course along with work on cases throughout the quarter. The next section discusses what students learned from writing cases by examining data collected (e.g., students' cases, students' final self-assessment essays, interviews with instructors, and interviews with students). It also addresses the kinds of supports (e.g., instructor feedback, peer conferencing, and course design) that may have helped students in further developing and deepening the analytic and theoretical understandings in their cases. The last section addresses how to design and teach the class differently, noting implications for teacher education. (Contains 20 references.)(SM)

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Toward Expert Thinking:
How case-writing contributes to the development of theory-based professional knowledge in student-teachers

Karen Hammerness and Linda Darling-Hammond
Stanford University

Lee Shulman
The Carnegie Foundation for the Advancement of Teaching

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This paper accompanies a multi-media website entitled "Learning From Cases" that provides additional resources, materials and examples of student work.

The web site can be accessed at:

http://kml2.carnegiefoundation.org/gallery/khammerness

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Introduction

In the course of writing, revising, discussing and receiving commentaries on my curriculum case, I have been able to see my teaching through a constructive lens. Being able to analyze my teaching with principles [of learning and teaching], in a strange way, has afforded me grace in a very challenging profession. Teaching can seem like such an emotional roller coaster with its surprising quick turns and scary dives into the unknown; grounding teaching in principles allows me to have a much smoother ride. I can learn from the surprises and recover more quickly from the falls.

—Eleanor Wang, STEP student, class of 2000

In contrast to Eleanor, often pre-service teachers find it difficult to adapt the theories and concepts taught in their teacher education courses to the immediacy and vividness of their clinical work. Many find the theories and concepts too abstract to help address the specific problems they face in their teaching practice. However, in some cases, through the use of well-scaffolded assignments and authentic assessments, new teachers are able to more effectively apply the theories and concepts addressed in their pre-service programs, in turn engaging in more sophisticated thinking and practices (Darling-Hammond & Macdonald, 2000; Merseth & Koppich, 2000; Miller & Silvernail, 2000; Koppich, 2000; Snyder, 2000; Whitford, Ruscoe & Fickel, 2000; Zeichner, 2000). Reading and writing cases may be a particularly powerful means for providing such scaffolding (Darling-Hammond & Snyder, 2000; Shulman, 1986; 1996). Reading and writing cases can provide students opportunities to problem-solve around classroom-based issues, to ponder various decisions and their outcomes, to consider multiple perspectives and to make connections to theory—all the while, still addressing the particularities of the situation. In other words, reading and writing cases can allow students both to take context into account and to address the knowledge base of the profession. Shulman argues that in particular, engaging student-teachers in the exercise of determining "what this is a case of" enables them to relate theory with practice:

> "What is this a case of" is a locution whose purpose is to stimulate students to initiate the intellectual work that makes cases powerful tools for professional learning. They must learn to move up and down, back and forth, between the memorable particularities of cases and the powerful generalizations and simplifications of principles and theories. Principles are powerful but cases are

> memorable. Only in the continued interaction between principles and cases can practitioners and their mentors avoid the inherent limitations of theory-without-practice or the equally serious restrictions of vivid practice without the mirror of principle (1996, p. 201).

Harrington's (1995) investigation of her own students' learning as they read and analyzed teaching cases supports Shulman's arguments about cases as tools for powerful learning. Over the course of a semester of reading and interpreting cases about teaching, Harrington found that the pedagogical reasoning of many of the pre-service teachers in her teacher education course developed in sophistication; the student-teachers were better able to frame problems, draw lessons beyond their immediate setting, and reflect upon their work using multiple perspectives and interpretations. Others such as Whitcomb (1997) have demonstrated that for some teachers, writing cases about their own practice invited deep reflection about practice and led to a kind of "reflection-on-action" that resulted in professional growth. Judith Shulman (1999) explored one teacher's professional growth a year after writing a case, suggesting that in particular the experience of considering "what is this a case of?"; of creating a case for an audience; and of focusing upon "breakdowns" in her classroom appeared to be particularly powerful sources of growth.

Although educational scholars such as Harrington, Shulman and Whitcomb and others have helped begin to build the research base on cases and case methods, empirical knowledge about the approach remains weak (Merseth, 1999). For instance, it is not clear *how* students' thinking about practice evolves through case-writing or reading. In addition, it is not clear what aspects or supports from an instructor can maximize—or obstruct—the benefits of case-writing (J. Shulman, 1999). Indeed, the features of the pedagogy in a teacher education program or course that can support such professional development in thinking remain in question (Lundeberg, 1999; Lundeberg, Levin & Harrington, 1999).

This paper explores what--and how—student-teachers may learn about theory and practice from writing cases, and examines some of the features of the pedagogy that may contribute to those results. This paper draws upon data collected from a quarter-long teacher education course, "Principles of Learning for Teaching," that is offered in the

Stanford Teacher Education Program (STEP) and was designed and taught by Linda Darling-Hammond, Karen Hammerness, Kay Moffett, Lee Shulman and Misty Sato.[1] In this course, writing a case was designed to promote the application of learning theory to practical experiences in the classroom and served as the central, culminating product of the class. The class was based upon a course that Lee Shulman, along with other faculty colleagues in the Stanford University School of Education, taught for over a decade in STEP. Shulman and his colleagues developed a tradition of case-writing in this course and refined and reshaped the pedagogy of supporting case-writing (for a description of that work, see Shulman, 1996).

The first section of this paper briefly describes the design of the course, focusing upon how we wove key concepts of the course along with work on cases throughout the quarter. The next section discusses what students learned from writing cases, by examining data collected including students' cases (from outline to final draft), students' final self-assessment essays, interviews with instructors, and interviews with a small sample of students. It also addresses the kinds of supports (such as instructor feedback, peer conferencing, and the design of the course) that may have helped—or could have hindered—students in further developing and deepening the analytic and theoretical understandings in their cases. The last section of the paper addresses how we might design and teach the class differently, and then turns to some implications for teacher education and the use of cases as a means of helping student-teachers bridge theory and practice.

The Principles of Learning for Teaching Course

Overview of the course

"Principles of Learning for Teaching" (PLT) is a course designed as one of four foundations courses[2] in the STEP program created to help introduce students to key concepts, theories, and understandings that undergird the practice of teaching and the experience of learning. The course met once weekly for two and a half hours, during winter quarter of the academic year 1999-2000. Most classes were divided into two sessions: a large group session combining demonstration, discussion and mini-lecture in which ideas were discussed and elaborated; and discussion sections (with about 12 STEP teachers in each) led by each of the five instructors.

The PLT course focused upon the relationships among four fundamental aspects of the teaching and learning process: the subject-matter of the curriculum, the diverse capabilities and backgrounds of students and the character of their learning, the contexts and cultures of the classroom, and the teacher's challenges in designing and implementing instruction. We wanted to help students understand the challenge of teaching as the creation of bridges between the knowledge embodied in the subject matter, on the one hand, and the minds and motives of students, on the other hand. We hoped that at the end of the course, students would leave with a deeper understanding of their own students' learning, of what and how they could teach, and of the way that cultures and contexts can shape learning in their own classrooms.

Case-Writing

To help students develop a deeper understanding of these issues, we asked the students to write a case of their own teaching. For the case, we asked students to select and write about an incident in which they were trying to teach something "of consequence" in their subject matter— a key concept, problem, topic or issue that was central to their own discipline such as the concept of irony in English, evolution in science, the ratio of pi in math, or the notion of cultural differences in a foreign language. We suggested that students focus upon an incident that had been particularly successful, unsuccessful, surprising or revealing—either way, such an incident would likely have the potential to raise some particularly interesting dilemmas or questions.

Our Purposes for Using Case-Writing

We felt that the use of cases might help students move away from naïve generalizations about their experiences towards a more sophisticated understanding of the nuances of teaching and learning. As Darling-Hammond & Snyder (2000) have argued, "[cases] allow the application of theoretical principles to problems in specific contexts while appropriately complicating efforts to draw generalizations about practice." In particular, we hoped that such examination through cases would help them see connections between what they chose to teach; how they taught the material; and what their students learned and how they responded—in other words, to use what they were

learning in our class to question, challenge, and examine their own experiences and practice.

Key Concepts Concurrent with Reading Cases

In the course, we focused upon key concepts that we felt were particularly central to the learning process, such as cognitive processing, learning theories, transfer, metacognition, scaffolding, cognitive apprenticeship, formative and summative assessment, and culturally relevant teaching. At the same time, we interspersed theoretical readings with cases that illustrated and elaborated the concepts we were discussing and exploring. So, for instance, the course began with an exploration of Bruner's (1960) notion of intellectual honesty and the challenge of identifying key disciplinary concepts and issues to teach, and in designing curriculum to meet the needs of children. The other reading assigned for that week was Ball's (1993) discussion of the dilemmas of teaching math in an intellectually honest manner which includes a set of three short "cases" of teaching mathematics in her third grade classroom. Along with readings on the concept of culturally relevant pedagogy (Ladson-Billings, 1996), students read Juarez's (1999) piece, "A question of fairness: Using writing and literature to expand ethnic identity and understand marginality," in which she describes her efforts to help her high school students in Oakland, CA analyze and better understand issues of their own and others' racial and ethnic identity. In many class sessions, we provided opportunities to discuss theory in concert with the teacher-written cases students had read. In this way, we attempted to provide students with experiences that enabled them to discuss, interpret, and analyze instances of practice using theoretical principles and concepts.

Scaffolding Case-Writing

There were several aspects of the course that were designed specifically to support students' case-writing. First, we hoped that reading cases written by other teachers would be helpful. Second, we created numerous opportunities for students to revise and develop their cases, requiring an outline and two case drafts before they turned in their final draft. On each draft they received extensive feedback from section

instructors, based upon a publicly shared and edited rubric. The rubric had been used and refined for a number of years in different versions of this course. It described the elements that should be included in students' cases, such as "context" (meaning that the case needed to provide information about the school, community, and their particular students, as well as the curricular context); "interactions" (the case needed to include information about how and what the teacher did, said, acted and felt as well as how the students responded); and "analysis" (the case needed to include a thoughtful exploration of what happened in the case that drew upon theory).

Halfway through the course, we asked students to refine the rubric to be sure that it really captured the qualities of good cases. They made a number of changes in the format of the rubric and suggested adding in a section on the quality of writing. At this point in the course, the instructors were growing concerned that many students were not focusing upon student learning in their cases (and also realized that our rubric did not reflect that focus); so instructors added more emphasis upon evidence of student learning in the rubric as well. Instructors then used the revised rubric to shape feedback on students' second drafts.

Third, we paired students with a partner whom they selected the first week of the course. The partner also read the case, provided peer feedback, alternative perspectives, as he or she began to know and understand the case almost as well as the author. Fourth, students participated in two "case conferences" in which they present their cases orally to a small group of four to six of their classmates and a facilitator. In the case conferences, we encouraged students to discuss theories and concepts that might shed light upon the case; consider alternative interpretations of the case; and assist their peer authors to identify important details, aspects, or portions of the case that may need additional clarification or elaboration. The case partner played an important role in each of the two case conferences as discussant. Eventually, at the end of the course, the partner wrote a "commentary" on the case, formally adding an alternative perspective or different interpretation to the author's case.

What Students Learned

Overall, instructors were encouraged by the development of the cases of many of the students. An initial examination of students' case-writing (outlines to rough drafts to

final piece), instructors' feedback, students' reflective essays, and interviews with instructors and students all provide examples of ways in which students demonstrated a more complex understanding of theory as well as of students, teaching and learning as their cases progressed. In order to examine this development in depth, we focused upon the work of four students who produced particularly powerful cases. These students represented three subject matters; two from English, one from mathematics, and one from science. These four students' early drafts through final cases were examined for the extent of their focus upon student learning, the demonstration of deep understanding of course concepts, and for the degree to which the cases revealed connections between theory and practice. In addition, we reviewed the feedback from instructors (questioning, references to the case rubric, probing, suggestions) in order to examine how the feedback may have helped guide the development of those qualities in the students' cases. Further data (including students' reflective essays, interviews with instructors, and interviews with the students) were also examined to see how students assessed what they learned from the case-writing experience as well as what they felt contributed to the development of their cases.

Three of the four students' cases revealed that their initial drafts and outlines harbored relatively naïve conceptions of teaching, learning and students, while in later drafts, demonstrated that they were using course concepts to analyze incidents, deepen insights, and to make realizations about their practice that went beyond lay wisdom about teaching to a more professional, theory-based thinking. In particular, these students' thinking developed in four key areas: explanations of practice and teaching events; understanding of students and student learning; explanations of teaching goals and objectives; and ability to reflect more broadly beyond the immediate here and now as well as beyond their classroom. These cases also suggest that providing students with the time to process and reframe problems was particularly important in helping them develop this thinking. They also reveal the importance of timing—instructors' feedback, particularly about theories and concepts from the course as they related to students' drafts—needed to be within students' zones of proximal development. Finally, they suggest that some course concepts may be more salient or more useful for student-

teachers to explore. Two of the four cases provide particularly good illustrations of this "development into expert" thinking that writing cases prompted in this course.

Sonya: From naïve discussion of "planning" to expert discussion of "intellectual honesty"

Sonya, a STEP student teaching ninth-grade English, wrote a compelling case narrative comprised of two acts in which she compared two lessons she taught from a unit on the play, Cyrano de Bergerac. Among a number of goals she articulated for the reading of this play, she particularly wanted students to begin to understand character development and motivation. She noted that she wanted students to be able to understand, for example, the character of Roxanne as not simply being shallow and superficial, but as a woman who may have had few options, limited by the kinds of decisions she could make. The first act of Sonya's case is a description of a day early in the unit that she felt was particularly unsuccessful. She had attempted to lead her students in reading the play aloud, engage them in the language of the play, and to discuss the characters and their actions. After reminding her students of the film they'd seen of the play the previous day, she began to lead them in reading aloud. But quite soon, students' attention crumbled. She quickly lost many of her poor readers, and frustrated the stronger readers, and the class disintegrated into discussions of recent movies students had seen. However, she felt that she partially salvaged the day by spontaneously asking two of her more theatrical students to act out the portion of the play they are reading. Though this "desperate move" (as she called it) seemed to engage her students and re-invigorate the class, she still felt terribly discouraged at the end of the lesson. She sensed that her students left the class feeling bewildered and frustrated as well. It was the first day she had actually considered leaving teaching, she acknowledged in an interview. In the second act of the case, she describes a lesson that occurs a week later in which she led her students to physically represent three stanzas in a speech from the play (a group of four or five students gathered for each stanza), invited them to write their own versions of the speech, and then debated the various perspectives and motivations they and the characters in the play may have had. During this class, a number of students made some perceptive comments about the characters in the play, demonstrated thoughtful insights about the form and tone of

the language they had read, and made some connections to the speech's meaning through their own experiences.

Sonya's thinking about this case developed in a number of arenas, over the series of drafts she wrote. Her development of a more sophisticated thinking also occurred in fits and starts across the drafts. By examining early drafts, feedback from her instructor, and her work on subsequent drafts, we can document the development of her understanding of practice towards more expert thinking. For instance, in Sonya's outline, she described these two classes without much detail and did not compare or contrast the two days in terms of their success or failure in motivating, interesting, or supporting the learning of her students. She attributed the unsuccessful lesson to "lack of planning." The more successful day, she wrote ambiguously, was a result of "better structure" and "appropriate activities for the extra energy" of the class. She explained; "I had not taken into account the extra energy that accompanies a pre-lunch class and realized halfway through my lesson that it was not planned out well enough." Her analysis focused upon the fact that she simply needed to plan more the next time around as this quote from her outline indicates: "The following Wednesday, I decided that I needed to really think through the lesson and design appropriate activities for the extra energy."

In feedback on this outline, her section instructor prompted Sonya to consider some of the theories that might help her analyze her case. The instructor suggested that Bruner's notion of "intellectual honesty" as well as his ideas about "readiness" and "structure" might be appropriate concepts to help her think about her case, adding for example, that Sonya might think about the ways in which the activities from each day were or were not "intellectually honest"; "What is it about paraphrasing the speech by Cyrano that might allow students to get at some deeper understanding of the play? In what ways was this an 'intellectually honest' activity for them?" Her instructor also urged Sonya to elaborate and articulate the goals and objectives she had for the lesson, asking what she felt it was important for students to understand and learn from the play; "Why is it important for them to understand those ideas? What did you <u>really</u> want them to learn, to come away with from this unit?" Finally, her instructor asked her to provide some more information about the curricular context for the content of the unit—to explain what students had been learning before this unit.

In Sonya's first draft, she responded to the questions about her goals and objectives and began to better articulate her goals and objectives for the unit; describing a clear, purposeful set of reasons for what she wanted her students to learn;

> When I was planning the unit, I found that even though I had started off focusing on the idea of beauty and how [it] influences people, I really became more interested in the character development. My main goal for the unit, besides getting my students to understand the plot, was to have them think about and better understand the motivation behind why the characters act the way they do.

She added in some very detailed context for the unit; explaining what students had learned before and seemed to understand (as well as her goals for them in previous units), providing a much richer context for the case. In this way, Sonya demonstrated a developing ability to contextualize and embed her curricular objectives, revealing a broader understanding of lessons as being part of a larger, purposeful curriculum.

However, Sonya did not yet in this draft consider the lessons' strengths and weaknesses in terms of how they engaged students and whether they were true to the text. In this first draft, she still attributed her unsuccessful lesson to "lack of planning", explaining that,

> I felt that I had an OK lesson even though I knew I hadn't planned it out entirely thoroughly…My lack of planning, combined with the generally held sense that Jessica is the 'real teacher', resulted in a general sense of chaos that was very hard to focus and move towards productivity.

In addition, despite the fact that her instructor had suggested some readings and concepts that might shed light upon her experience—in particular, to the notion of "understanding" and her role as a teacher in constructing understanding, as well as to Bruner's concept of intellectual honesty—Sonya did not yet pick up on those ideas and address them in her first draft. Indeed, she did not address any of the concepts, theories or readings from the course in the seven pages of this first draft.

After the first case draft was due, the first case conference was held. Sonya noted in her interview that several of her peers urged her to focus even more closely upon the two contrasting days and to provide more detail. They also considered potential theories and concepts that might apply to her case, suggesting that her case might be explained

and analyzed using concepts such as transfer and understanding. In addition, she met with her instructor to talk about her case, who again suggested that she might think about how the concept of intellectual honesty related to her case: what was it about the activities she selected that made them more—or less—intellectually honest?

In the second draft, Sonya's thinking regarding her teaching had clearly evolved and developed. Working from the requirements on the rubric for cases about detail and richness regarding interactions with students, and from comments from her instructor about adding in quotes and images from the two days, she provided much more detail in her second draft about the first lesson than she did in the first draft. She described her goals and purposes for the lesson, the activities she had selected (and why), and provided quotes and images to suggest how the students responded in each segment of the class. She explained how her desire to have her students encounter the text in its "purest form (spoken, instead of read)" contributed to her decision to have students read aloud that first day. She also described the effects of that decision: "instead of reading the play in a fluent manner, students got confused by the format; the newer readers couldn't follow the strange layout and the more experienced readers got easily frustrated by the delays." She then richly described her spontaneous move to have students act out the play;

> ...about two thirds of the way through the class, I realized that reading aloud was not working and my students were not getting the character intentions, so I decided to try a different tactic. Enlisting the aid of Arnetha and Brad, two sophomores who were fairly strong readers, I had them act out the scene where Montfleury is chased offstage by Cyrano. Both are fairly theatrical and they gave a believable rendition of an irate Cyrano threatening the poor actor and causing him to go dashing into a corner...This seemed to capture my students' interest; they perked up with the visual element and seemed more engaged.

She concluded, "even though I left class feeling unhappy and unsuccessful on a number of levels, I needed to think about what had happened and where things went wrong."

At this point in her case-writing, she moved from emphasizing her unpreparedness to describing the assumptions she had made about her students; "I realized that I had been inadequately prepared for the lesson, but I also realized that I had made a few erroneous assumptions and that these assumptions had contributed to the day's frustration." In this second draft, she details these assumptions, explaining she had believed that,

> ...teaching in an intellectually honest manner meant that I should present the material in its purest form, the text itself. Going with the notion that plays are meant to be heard, I thought that having students read through the play would automatically give them access to it...I didn't take into account that most of my students are not equipped to jump right into a text and create their own visuals, and that throwing them into this situation would leave them frustrated and uninterested.

Interestingly, while Sonya had been urged by her instructor to consider the notion of intellectual honesty, in response to her outline, Sonya did not address this idea until her second draft. Perhaps she simply needed time to think through the experience and the case-writing, with its various drafts, enabled her to have more time to do that thinking. Or, perhaps at the point of the second draft, Sonya was in the position to accommodate the feedback about intellectual honesty—through feedback from her peers and instructors, perhaps she was in the zone of proximal development.

In this second draft, Sonya also began to articulate that her own interest in the play might not necessarily be shared by her students; "since the play appealed to me on so many levels, it would also appeal to my students on many levels as well; by presenting the text, I would be encouraging them to make their own connections and relate to the play on their own terms instead of imposing my interpretation on them." She shares a recognition that, "Once confronted with the fact that I hadn't adequately taken my students' needs into account, I stumbled upon one moment of intellectually honest teaching, more out of sheer desperation than any sort of careful planning." She analyzed that when she had her two students act out the play,

> I provided my students with visual access to the play....in this repackaging of the text, I had come across an concept that was more intellectually honest to their needs; I had presented them with the material in a way that gave them access on a deeper level and got them thinking about the key concepts we were focusing upon, namely what motivated Cyrano (and other characters) to act the way he did.

Here Sonya's deep analysis of her "desperate" move revealed a very sophisticated thinking about her students' needs, about intellectual honesty, about how to reach her goals for their understanding, and about teaching for understanding. She concluded, "Inadvertently, I had discovered how effective Bruner's idea of intellectual honest truly

was in helping students better understand and tackle difficult material that didn't seem to have much direct relevance to their current lives."

> Sonya was also able to articulate what made her second Wednesday so successful.
>
> Once again, I came face to face with Bruner and his idea of intellectual honesty. Taking my lesson piece by piece, I saw that I had done a much better job of presenting the material in a way that was true to my students' needs and interests, giving them an opportunity to visualize, relate more intimately to the characters, and interact with the text on a less threatening level. ..I incorporated several strategies instead of focusing upon one approach (reading aloud)...some kinesthetic activity, some writing and higher-order thinking, and quite a bit of verbal communication....These diverse activities allowed more students better access to the material, in giving them a chance to move between representations, I also gave them very different ways of accessing the material. All of these activities offered some intellectual insight into the play because I had taken into consideration my students' needs and tried to fashion the material in ways that would best suit their learning strengths.

Sonya was able to reflect upon and recognize the power of using various approaches for her diverse students; and what they enable her students to do. She has also learned that various "forms of representation" of material may engage students in different ways.

Indeed, by the final version of her case, Sonya's thinking had developed from a more simple description of an unsuccessful moment as "lack of planning" to a very sophisticated and theoretically informed understanding in which she demonstrates an understanding that the issue was not time and planning but the *kind* of planning that is important—one's ability to discern how to present and represent a concept in a way that engages and addresses students' needs, interests and strengths. Building her analysis around Bruner's notion of "intellectual honesty" she suggests that her second lesson, in which students acted out the speech, was more effective because it engaged the different learning styles of her students and in fact was more true to the "pure" form of the text than simply reading it aloud. In this analysis, she considers what "intellectual honesty" means, explaining that, "There is a delicate balance between presenting the material in a pure form and getting students to make connections they aren't necessarily capable of making yet and shaping the material in a way that is comfortable for them and inspires them to dig deeper." She considers that,

> ...by offering the material in a context that was different but not completely far-fetched, I allowed them to see the play as something more dynamic than just

> words on a page and I gave them an 'in' they hadn't seen themselves. This, to me, is intellectually honest teaching: noticing the 'ins' that will capture your students' interest and coax them into making the connections you know they are capable of making....

While some might question whether Sonya simply replaced one concept—planning—with another—intellectual honesty—without a deeper understanding of the theory (perhaps she just filled in or add in references to what her instructor suggested, one might argue) her explanations and own definitions of intellectual honesty suggest otherwise, revealing a deep understanding of the concept. Here, for instance, she explains what she means by intellectual honesty:

> One of the cores of good teaching...is truly having a sense of what your students need: this is one of the cores of intellectual honesty as well. As hard as it is to remember the needs of all students, or to figure them out to begin with, maintaining a strong awareness of the impact of intellectual honesty is quite essential for good teaching. Students need to be engaged with the material before teaching can really happen, and presenting it in an intellectually honest way will help them make the leaps and connections that they didn't realize they could.

In her reflective essay, she again wrote about what intellectual honesty means to her teaching, "writing my case and thinking more deeply about how I plan my lessons has made me more aware of being intellectually honest and trying to present ideas in a way that relates to my students. Good teaching is all about getting students involved in learning and presenting concepts in a way they can understand; it is all about understanding (or trying to get a sense of) where they are mentally and intellectually and using that information to help them move to where you think they should be or what you want them to know." Sonya also reflected that writing the case helped her trust her instincts and appreciate what she had done "right" in the classroom:

> Writing my case has given me an opportunity to closely examine my own teaching in a way I hadn't previously....getting the chance to apply specific ideas to my own teaching is something that I haven't had yet in STEP; this is the first chance I had to take something we had learned and actively apply it to my teaching methods...Often this past year I have felt overwhelmed by this ideal of a perfect teacher who manages to run every class wonderfully and meet every kind of student need. Getting a chance to examine my own teaching showed me that I have some of the skills necessary to become a good teacher; it also provided me with some necessary reassurance, the reassurance that even though I have a lot to learn, I'm starting off on somewhat firm ground.

Mika's case: From seeing students' failures to appreciating their perspective

Mika, a STEP teacher also teaching ninth-grade English, wrote her case about her efforts to help her students achieve more success on her vocabulary tests, and ultimately develop their vocabulary. In the final version of her case, she describes her belief that students in her classroom need to develop a strong academic vocabulary, that it will offer them a powerful advantage in the future:

> I wanted vocabulary to be an essential part of our learning experience because it is one of the building blocks by which we expand our personal lexicon and a vehicle which is used by many to then read a more diverse pick of literature. Vocabulary is also the marker of the arrival at academia, and if one can talk the talk, so to speak, one is often hailed as "educated," "literate" and "academic." I want to offer my students this very advantage when I make vocabulary a part of our class; to make it more connected to their curricular study, I pick words that come out of the texts we read.

Like Sonya, Mika's case writing from outline to final draft also reveals a striking development from a more naïve formulation of her practice to a much more sophisticated, probing treatment of her teaching. An examination of Mika's case drafts, from outline to final piece, along with an examination of the feedback from her instructor, reveals that this development occurred over a number of drafts. This analysis also suggests that questions and comments her instructor asked may have led to Mika's increasingly detailed and thoughtful responses, the elaboration of Mika's thinking, and the development of her ideas beyond naïve conceptions.

Mika's early drafts focused upon the students' failures, framing their lack of success as their "problems." In her outline, she listed four problems her students had around the vocabulary tests:

> 1. Kids weren't studying; 2. Kids didn't know how to guess given context clues; 3. Kids didn't know parts of speech; 4. Kids didn't know how to figure out a word's part of speech given the way the word looks.

Her instructor's response to this list suggested Mika think about the relevance of the activity to the students' own lives, as well as what might motivate students to be interested in the activity, "I also wonder whether there are questions there about the value

of the activity (motivation), the link to the literature the words came from or to any other real world context (relevance)—opportunities for practice..."

In Mika's first draft, she began to elaborate the experiences she was providing for her students in terms of vocabulary work. She began to describe in more detail exactly what students were having trouble with and under what circumstances; she described students' inability to write sentences using vocabulary words correctly, and noted that few students seemed to be studying. Yet she also still described students "whining about how little time there was" and "complaining about the time crunch." In response, her instructor wrote, "You seem to see the problems as their failures. Are there aspects of your teaching or testing methods that should be considered as part of the problem?" Mika's section leader urged her to examine her teaching as something that could potentially shape students' responses and success—rather than looking at students as the source of all problems.

In addition to this urging, her section instructor also prompted Mika to talk about the contexts within which the words were being studied (asking questions like, "Where did the words come from? Did they relate to your readings? Did you teach them in groups that showed root words or prefixes/suffixes? What was the rationale and meaning context for the words?") In response to Mika's observation that students did not seem to be studying or using the words after the test, her instructor queried, "Were there specific occasions for them to do this?"

Thus, Mika's initial draft of seven pages clearly revealed the persistence of naïve formulations about students and teaching. And, while her first draft included two or three brief references to theory or concepts from the course (for instance, she mentioned that she was engaging her students in a "metacognitive process" of making explicit how they guessed words), she did not yet use those concepts as a way to interpret or make meaning of her experiences.

In her second draft, Mika examines the experience more fully and richly—not just blaming the students, but questioning the situation she herself has created as their teacher. So for instance, while she wrote in her first draft, "Here another problem was raised—they failed to manage their time well" she writes in her second draft,

> Here another question was raised. Was it that they had too little time? Or was the culprit that they had not studied adequately? They could not apportion out the time they had in order to finish the test on time....[Or] perhaps it was because I had not prepared them for this simulation; after all, nothing in our class is timed and as pressured as this. Most of the activities in our class tended to be more student-centered, and this quiz was a frightening contrast to all that they'd been used to.

Mika also expressed an understanding—which seemed to have been prompted by her instructor's questions about the relevance of the words to students' lives—- that she was not necessarily giving her students experiences in using the words in class. She now explained in her second draft that "Granted that there were no specific occasions for students to actually use the words orally in class after the test, I still hoped that in their papers I would see some vocabulary words used." Her instructor's probing seemed to have helped Mika to see the context in which she was teaching the words—helping her to articulate and recognize what she was providing for them in terms of scaffolding—and not providing as well.

In response to her instructor's questions about possible validity to students' perspectives that they might not use the words in their own lives, Mika began to articulate a more complex view of her students and their needs and the ways that schooling may or may not fit their particular needs and lives. In her second draft, she considers that the vocabulary words may not have relevance to their lives outside of school. She notes,

> Because they stopped short of seeing learning the words as the beginning of a lifelong accretion of knowledge, it makes sense that they saw no relevance to the words as related to their lives. Maybe it really is a case of the words not having any relevance to their real worlds outside school.

The section instructor's questions about what students "could and couldn't do" in her feedback on the first draft seemed to prompt Mika to talk about the abilities of students in more detail and with greater distinction—as well as to examine more carefully what students could and couldn't do. In her second draft, she thus wrote about the fact that students had trouble applying knowledge to new situations that were quite different from past situations, using the course concept of "transfer" in a thoughtful and rich way; " I could tell my students had trouble engaging in 'high road transfer'; they could engage in low road transfer, however." She elaborates, "they could apply the concepts they had

learned in the same contexts, but no one had asked them to engage in higher order thinking."

Mika began to recognize how to look at things from the students' perspective. She was also able again to recognize the important lack of context students were faced with and how that might have shaped the outcome—something that was not something the students had created, but she as a teacher had. She reflected, "Unfortunately because the words were without context and I had not made the connection between the game and the usage of the words explicit, the connection was lost to most students, resulting not only in poor quiz grades but also a dismissal of the words after the quiz."

Mika expanded her thinking even more in the final version of her case, showing that she really understood what role the context of learning can play: "In order to delegate authority in a way that causes my students to want to learn and use vocabulary, though, I also have to create a meaningful context in which they can use the words and not partially as I did in around the world." She also added that most of their vocabulary time seems to be separate from the rest of the class time:

> What message is that sending to the students? Am I reinforcing that vocabulary is indeed just a part of our curriculum, but not really an essential tool to our literature study? Or am I telling my students that the value of vocabulary is priceless and therefore I want them to have access to such a treasure?

By looking at her own implicit messages about curriculum and the way she presents and structures her time—what messages students may be receiving from her—Mika demonstrates an even more sophisticated understanding of her teaching.

Mika recognized her own development into more expert thinking. In her reflective essay, she wrote, "throughout STEP, I have been waiting for something like this course to happen but I just didn't know it." She explained that she has developed a deeper understanding of intellectual honesty: that it meant to her that she needs to think carefully about how to scaffold for a particular skill.

> I have begun to think about this more and more as I lesson plan…In order to hook kids into becoming learners and students, I must be able to appeal to them at their level. I don't necessarily see it as dumbing it down, but as seeing how I can create a lesson that is authentic to my students' needs.

Mika felt that "looking at my practices has made me a more reflective educator because I must look at what I do in my classroom and how it exactly promotes understanding." By looking at vocabulary, she was able to "see how difficult it really is to teach something that is decontextualized from content matter." She took this insight to a school curricular level, asking "Why is vocabulary so detached from the reading or the writing we want our students to produce?" commenting that, "I think it made me aware of how often terms and concepts in the curriculum are divorced from actual content."

Mika also added that she learned a number of important lessons about teaching, learning and reflection from writing the case. She suggests that "remembering the details" as she calls it, made her think about "why I made changes, why I thought that was in the best interest of my students, and what I left out." "Remembering the details really brought out what I should have been doing metacognitively as I structured this part of my curriculum." Mika felt that the instructor's questions and probing for articulation of the particular aspects of her curriculum, such as why she chose to teach certain ways, how students responded, what moves she made to relate to her students, helped push her thinking towards a more "metacognitive" approach to her work.

Mika concluded that,

> This project truly helped me look at my curriculum, my practice and my philosophy as an educator. I am finding for myself where my values lie and how those very values inform what I do day to day. I am learning how to become a more reflective, equitable educator, and this class helped me clarify what I believe about teaching. Most important, this class has helped me articulate what I believe about effective teaching. This very articulation has given me principles by which I might in the future, utilize in order to become an independent and effective practitioner in a community of educators.

Naïve to Expert Development Beyond These Cases

In addition to an analysis of the four students' cases, we also examined all fifty-four students' reflective essays to help us understand what all the students felt they learned from writing cases. Seventeen other students recognized such development in their thinking as well. Those students explained in their reflective essays that they felt that their thinking about teaching and learning had grown more complex and deep as a result of writing their case, describing how their understanding of the incident had become

more multi-faceted, taken into account more perspectives, and had enabled them to apply theory in useful ways. For instance, John noted that he originally felt that all he needed to do to improve the teaching in his case was a "little fine-tuning", perhaps to "add a day and try again" but that by the end of the course he had a very different sense of the intricacies of his classroom teaching:

> The experience of writing a case turned out to be a profound experience. When I finished teaching the unit in November I knew the lessons needed a little tuning…I talked to my CT about what happened and left it at that…writing the case I was able to get a lot more out of what happened. I had my eyes opened to seeing the implications of time allotment, lesson sequencing, prior knowledge and pre-assessment, and making choices on the fly to ensure the success of a lesson. If I had not written and re-written the case as I did, I would not have the deeper insights I have…Before the development [of] my case study, I thought I would simply add a day or two and try it again…[but] I now know that I have to put more effort into my assessment of prior knowledge and concepts and that I have to not move on to new material until I am certain that I have achieved the goals I set out at the beginning.

Furthermore, several of these students explicitly noted that they had originally considered one rather simple interpretation of their case but that they developed a richer appreciation of all the factors involved as their drafts developed. Jessica, for example, reflected that she learned that her case was more than just about the amount of feedback she provided for students:

> What I have learned is that every teaching event…presents layers of complex and interactive difficulties, successes and failures….I learned that my case was more than not giving enough feedback. I learned that I didn't know my students well enough. I didn't realize that I had to scaffold every piece of the complicated unit so that they could handle the research, performances, the groupwork, content, and the ethics for the diseases they studied. I have to be careful of my assumptions about my students in any class.

Another teacher, Leslie, wrote that she had originally thought her case was about "time management" but that her interpretation developed over the course of case-writing:

> When I first sat down to watch the video of my case lesson, I attributed my bewilderment in the unfolding of the poetry discussion to a need for better time management. While time management is always a factor in teaching, I began to see that there were other factors of the discussion that could be adjusted to create a more fruitful learning experience for the class. I began to wrestle with what this

> lesson was a case of. The readings [by] Bruner, Norman and Ball…spoke to the crux of my case.

Discussion

The two cases of Mika and Sonya, along with evidence from additional students' reflective essays, illustrate students' growing expertise in thinking about learning and teaching. These students did not simply replace one explanation with a new one. Rather, as one student explained, STEP student-teachers were able to "watch their cases progress" and view their cases "through multiple lenses due to new articles and theories." Students began with a simplistic explanation of their dilemma or challenge, often offering a rote solution that did not involve theory. Students' initial explanations suggested they framed their problems as practical ones; they hadn't planned enough, they didn't organize their lessons correctly; they encountered behavior problems, they needed to lengthen the time allotted for activities. They often also began with a focus upon themselves and their own teaching and planning, with little attention to student learning. However, opportunities to use and apply theoretical concepts from the course enabled students to re-frame the problem, complicating and deepening their analysis of the issues involved, moving beyond practical or personal explanations to research-based explanations. Then, when prompted, students were even able to generalize from their cases, moving beyond their specific, immediate experience to consider how these experiences might inform their teaching in the future, to draw broad lessons about student learning and teaching, and to link their particular experiences to those other teachers might encounter. Mika, for example, developed her understanding in ways that helped her articulate her goals and rationale for teaching vocabulary, appreciate the way her teaching might have shaped students' responses, and recognize how her students' strengths, backgrounds and needs might shape what they do and how they learn. Furthermore, she moved beyond a focus upon the immediate, particular incidents occurring in her classroom to an exploration of these issues at a curricular level.

Not all students evidenced this kind of development of thinking in their cases. In particular, students who did not receive the same in-depth feedback did not show this general development of naïve to expert thinking. For instance, a math case examined as

part of this analysis did not develop a different framing of the problem—indeed, the analysis remained the same from the first draft to the final version of the case. The feedback for this student may not have provided enough scaffolding or probing in the way that the feedback for Mika or Sonya did. In addition, this student's case partner did not teach math, which the case-author felt afforded him less useful feedback on his case.

These cases suggest that a number of features of the course may have contributed to students' developing thinking. First, one can see how students are responding to and building upon instructors' feedback in the various iterations of their drafts. The key development in thinking appeared to take place between the first draft and the second draft. For example, even though Sonya's section leader suggested thinking about intellectual honesty in response to her outline, Sonya did not find that concept valuable until she was writing her second draft. Perhaps Sonya needed more time to mull over and analyze the problem—which writing several drafts allowed her to do—and perhaps the feedback needed to come after she developed a more complex appreciation of the phenomenon in her classroom and of the concept of intellectual honesty. It is worth noting that this year, students wrote an additional draft, completing three drafts instead of two, and all instructors felt that the cases were richer and deeper than in previous years. Perhaps the combination of additional feedback, along with further time to develop thoughts through writing contributed to the richness of these cases. Thus, the combination of time, purposeful and specific feedback, and multiple drafts may have been particularly effective in supporting student's thinking about practice.

One critical aspect of this feedback was likely the constant references and ties made to theory and concepts in the course. Without this grounding in and connecting to the professional knowledge base of teaching and learning, students' cases might have remained personal and idiosyncratic explorations of their own experiences. However, instructors built their comments, questions, and probes upon a body of research about teaching and learning, frequently referring to particular articles, concepts, theories or issues from the professional literature we were reading in class. Through such exposure to and interaction with theory, students were able to build upon the theoretical connections and links seeded by instructors, in turn, pushing their cases beyond mere

personal exploration towards more sophisticated, appropriately complex, research-based explanations.

Two other features of the course also seemed to have contributed to the development of students' thinking between the first and second draft. The case conference occurred the day that the first draft was due. Many students felt that the case conference was particularly useful in generating explanations, making connections to theory and hearing alternative interpretations of their cases. Second, students had an opportunity to revise the rubric, which meant that they again had a chance to examine and evaluate other examples of teacher-written cases. Revising the rubric also allowed the instructors to emphasize student learning even more—they felt that the previous rubric did not capture the kind of careful examination of students' responses that they wished. This focus upon student learning in the rubric and in the course may have also contributed to student-teachers' more complex understandings and discussions of the experiences they faced in their cases. Indeed, requiring student-teachers to include evidence of student learning (in the form of quotes, dialogue, student work samples, even descriptions of students' body language) provided case authors with more concrete evidence to analyze using theory. This seemed to move student-teachers away from an "I did this, then I did that" approach to an examination of students' responses and hence, to exploring issues of student learning.

Other aspects of the course, such as the case partners, seem also to have been important as well in supporting many students' thinking in their cases. While some students had mixed feelings about the usefulness of the case partners and the case commentaries, a number agreed that there were some features of partnerships that were particularly helpful. For instance, when case partners shared disciplinary background, understood one another's school sites, had opportunities for frequent feedback and found opportunities to converse outside of class about their cases, students felt their cases benefited from their colleagues' perspectives.

Implications

The initial analysis of student work in this paper illustrates the kind of valuable learning students may gain from writing cases. While evidence exists that reading cases may be a fruitful means of helping student-teachers develop pedagogical reasoning

(Harrington, 1995), this analysis suggests that writing cases may provide powerful opportunities for pre-service teachers to examine assumptions, frame problems, and develop their pedagogical muscle with regards to their own particular contexts and classrooms. Indeed, three of the four focal students examined in this paper demonstrated in their successive case-writing drafts that they learned to re-frame problems in ways that moved beyond lay wisdom and commonsense, drawing upon appropriate theory and research (as well as upon the clinical experiences of others) in order to develop more fully articulated, complex understandings of their classroom experiences. They learned to think about their students in ways that moved beyond simple assumptions, developing an appreciation for the contextual nature of student learning, students' individual differences and strengths, and the relationship between learning and students' own lives and experiences. They learned to elaborate, examine and challenge their own goals and objectives for their students, clarifying their reasons for teaching certain concepts, problems, topics and issues. Finally, they demonstrated an ability to think beyond their current, particular problem, drawing lessons for their future teaching and about the nature of teaching and learning.

While keeping in mind that this investigation focused upon a small number of students, several implications about the nature of case-writing in this course may be drawn that may also be useful for others considering using case-writing in their teaching. First, the context of the case-writing may play a significant role in the development of students' thinking. Students were writing their cases while reading, discussing and relating theory about student learning, contextual and cultural features of learning, about understanding. Such a context seems to have fostered the interplay of the practical and the theoretical in ways that deeply supported and reflected the kind of connections between the two that we hoped to foster. Students were able to hear (and read cases written by) their peers relating theory to their classroom experiences. Through case conferences they benefited from colleagues' perspectives on which theories seemed best to relate to their own work. Students had multiple opportunities to experience how theory and practice inform one another in this course. In their reflective analyses, students mentioned a number of key concepts that seemed to have made a strong impression upon them—and whether it was the case-writing that supported that learning or reading of

concepts and theory—or the two together, many students felt that their ability to appreciate the relationship between theory and practice had deeply developed in this course.

Second, this analysis also suggested that the timing of feedback about theory is critical. For instance, the period between the first draft and the second draft, also when the case conference occurred, was when much of the re-framing of the problem occurred for these particular students. This suggests that when working with students on cases, the use of multiple drafts may be particularly beneficial. In addition, it suggests that as instructors we need to be particularly mindful of the nature and depth of feedback we provide in response to the first draft. The role of the case conference may be influential at this point of development as well; many students felt that the case conference after their first draft provided a very generative forum for re-thinking, complicating and re-framing the way they defined the problems and issues in their cases.

Third, while we have been able to demonstrate some of the kinds of developing thinking that students experience during case-writing, a deeper examination and elaboration of the character of that thinking will become particularly helpful in the future. What is required next is the development of a kind of conceptual framework that can describe the areas and aspects in which students' expertise grows. For instance, Sonya's case-writing seemed to help her develop deeper links between theory and practice, and Mika's case-writing demonstrated a more profound appreciation for students' experiences and their learning. Might those areas represent aspects of thinking many students develop through case-writing? We may be able to identify a set of arenas in which students' thinking through cases can develop. Such a framework would enable us to both assess students cases more pointedly and purposefully, contributing to the development of a more sophisticated rubric for course use. A framework could also enable us to pursue fruitful analyses of thinking across a wide variety of teacher-written cases.

In sum, while this paper focuses upon how to help students develop their professional thinking through cases, linking theory and practice in more substantive ways, looking at this journey allows instructors to develop better supports for teachers along the way. Through close examinations of the pedagogy of case-writing, instructors

may be able to serve as more effective and purposeful stewards as they shepherd new teachers through their journey towards more expert thinking about practice.

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[1] Many of the materials described in this paper, including the case outlines, drafts and final copies of students described in this paper, an archive of additional STEP students' cases, copies of instructors'

feedback, the case rubric, a description of the case conference format, the course syllabus, and additional resources about cases in teacher education, can be accessed at the "Learning from Cases" website, http://kml.carnegiefoundation.org/users/khammerness.

[2] The other foundations courses are: Adolescent Development, offered in Fall Quarter, School Reform, offered in Spring Quarter, and The Ethics of Teaching, also offered in Spring Quarter.

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